

ABSTRACT

The present invention provides a device to achieve the conversion or amplification of the frequency of optical radiation, both continuous wave and pulsed, with a cheap and compact structure.

The device comprises a multilayer structure 6 containing a metal layer and a dielectric layer, a transparent dielectric material (prism) 17 disposed on the top layer 1 of the multilayer structure 6. Incident beam 16 is coupled by a coupling means 14, utilizing a specific surface plasmon-polariton mode, thereby output beams 18, 20 reflected from a sample are modulated or amplified.